



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference A4-218PCT		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/US2004/027552		International filing date (day/month/year) 25.08.2004	Priority date (day/month/year) 27.08.2003	
International Patent Classification (IPC) or national classification and IPC H01R12/28				
Applicant MOLEX INCORPORATED et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input checked="" type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 15.03.2005		Date of completion of this report 13.09.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Criqui, J-J Telephone No. +31 70 340-3358 		

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

10/565876

International application No.
PCT/US2004/027552

IAP20 Rec'd PCT/PTO 23 JAN 2006

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-7 as originally filed

Claims, Numbers

7 as amended (together with any statement) under Art. 19 PCT

Drawings, Sheets

1/6-6/6 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☒ The amendments have resulted in the cancellation of:
 - ☐ the description, pages
 - ☒ the claims, Nos. 1-6, 8-10
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/027552

Box No. II Priority

1. ☒ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:
 ☒ copy of the earlier application whose priority has been claimed (Rule 66.7(a)).
 ☐ translation of the earlier application whose priority has been claimed (Rule 66.7(b)).
2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rule 64.1). Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	7
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	7
Industrial applicability (IA)	Yes: Claims	7
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)

International application No.

PCT/US2004/027552

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Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Reference is made to the following documents:

D1: EP-A-1 311 028 (MOLEX INC) 14 May 2003 (2003-05-14)

D2: US-B1-6 254 406 (HUANG RICHARD ET AL) 3 July 2001 (2001-07-03)

2 INDEPENDANT CLAIM

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 7 does not involve an inventive step in the sense of Article 33(3) PCT.

2.1 Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document):

**An electrical connector (10) for terminating a flat electrical circuit (20), comprising an elongated dielectric housing (30) having an opening (31) for receiving an end of the flat circuit;
a plurality of terminals (50) mounted on the housing in a side-by-side array and spaced along the opening, said terminals having contact arms (52, 53) with contact portions (55) projecting into said opening for engaging appropriate contacts on the flat circuit (20);
an elongated actuator (70) pivotally mounted on the housing for rotating movement between an open position allowing the flat circuit to be inserted into said opening and a closed position biasing the flat circuit against the terminals, the actuator having rotating bosses (75) at opposite longitudinal ends thereof and cam projections (see D1, figure 10, reference (75)) on end faces of the bosses;
a pair of fitting nails (63) for fixing the connector to a printed circuit board;
and
said housing including an elongated rear portion into which the terminals can be mounted from the rear of the connector, a platform portion (32)**

projecting forwardly of the rear portion and combining therewith to define said opening (31) into which the flat circuit can be inserted from the front of the connector onto the top of the platform,
a pair of end walls spaced outwardly (see D1, § [0024], figure 1) from opposite longitudinal ends of the rear portion to define a pair of actuator receiving slots for receiving the rotating bosses (75) of the actuator (70),
a plurality of guide grooves on top of the platform portion (see D1, § [0018], lines 53 - 56, figure 1) for receiving the contact arms (52) of the terminals, and
said pair of end walls including nail-receiving passages opening (see D1, figures 1, 9) at a front of the housing for inserting the fitting nails into the passages, said nail-receiving passages being in communication with said actuator-receiving slots, and the fitting nails (63) including actuator supporting portions (61) extending into the slots.

from which the subject-matter of claim 7 differs in that:

- a) **the actuator includes longitudinally outwardly projecting locking protrusions at opposite ends thereof and the end walls of the housing include locking grooves on the insides thereof for receiving these locking protrusions when the actuator is in its closed position;**
- b) **the guide grooves for receiving the contact arms of the terminals have a plurality of partitions between them having sloped front end surfaces for guiding the flat circuit into said opening,**
- c) **there are cam grooves in the inside faces of the end walls for receiving the cam projections on the actuator.**

2.2 However, these features have already been employed for the same purpose in a similar electrical connector, see document D2 for these respective features:

- a) column 3, lines 43-47, figure 2, references (53), (172);
- b) column 2, lines 57-59, column 3, lines 15-17, figure 2, references (11), (15);
- c) column 4, lines 19-34, figure 7.

It would be obvious to the person skilled in the art, namely when the same result is to be achieved, to apply these features with corresponding effect to an electrical connector according to D1, thereby arriving at an electrical connector according to claim 7.

2.3 Therefore the requirements of Article 33(3) PCT are not fulfilled.

3 INDUSTRIAL APPLICABILITY

The subject-matter of the present application, relating to an electrical connector, fulfills obviously the criteria of industrial applicability (Article 33(4) PCT).

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7. An electrical connector (30) for terminating a flat electrical circuit, comprising:

an elongated dielectric housing (34) having an opening (36) for receiving an end of the flat circuit;

a plurality of terminals (38) mounted on the housing in a side-by-side array and spaced along the opening, said terminals having contact arms (38b) with contact portions (38e) projecting into said opening for engaging appropriate contacts on the flat circuit;

an elongated actuator (40) pivotally mounted on the housing for rotating movement between an open position allowing the flat circuit to be inserted into said opening and a closed position biasing the flat circuit against the terminals, the actuator having rotating bosses (58) at opposite longitudinal ends thereof and cam projections (60) on end faces of the bosses and including longitudinally outwardly projecting locking protrusions (64) at opposite ends thereof;

a pair of fitting nails (42) for fixing the connector to a printed circuit board and

said housing (34) including

an elongated rear portion (34a) into which the terminals can be mounted from the rear of the connector,

a platform portion (34b) projecting forwardly of the rear portion and combining therewith to define said opening into which the flat circuit can be inserted from the front of the connector onto the top of the platform,

a pair of end walls (34c) spaced outwardly from opposite longitudinal ends of the rear portion to define a pair of actuator-receiving slots (48) for receiving the rotating bosses of the actuator and including locking grooves (52) on the insides thereof for receiving the locking protrusions (64) when the actuator is in its closed position,

cam grooves (50) in the inside faces of the end walls for receiving the cam projections on the actuator,

a plurality of guide grooves (44) on top of the platform portion for receiving the contact arms of the terminals with a plurality of partitions (44a) between the guide grooves (44), the partitions having sloped front end surfaces for guiding the

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flat circuit into said opening (36), and

said pair of end walls (34c) including nail-receiving passages (46) opening at a front of the housing for inserting the fitting nails into the passages, said nail-receiving passages (46) being in communication with said actuator-receiving slots (48), and the fitting nails (42) including actuator supporting portions (42f) extending into the slots.